

What is claimed is:

1. A crystal production apparatus comprising:
5 an impinging plate having an impact area defined on a surface thereof; and
at least two jet nozzles adapted to direct respective jet streams towards the
impinging plate so that said jet streams impinge the impact area of the impinging plate.
2. A process for synthesis and crystallization of a pharmaceutical product having
10 small crystals of controlled particle size, comprising the steps of:
impinging at least one jet stream of a first fluid on an impact area defined on a
surface of an impinging plate;
impinging at least one jet stream of a second fluid on the impact area; and
15 mixing the at least one jet stream of the first fluid with the at least one jet stream
of the second fluid about the vicinity of the impact area upon impingement of the jet
streams with the impinging plate, each jet stream having sufficient linear velocity to
achieve high intensity mixing of said fluids, followed by nucleation of the pharmaceutical
product.
- 20 3. A process for synthesis and crystallization of a pharmaceutical product having
small crystals of controlled particle size, comprising the steps of:
impinging at least one jet stream of a first fluid including a first reactive
intermediate on an impact area defined on a surface of an impinging plate;
impinging at least one jet stream of a second fluid including a second reactive
25 intermediate on the impact area;
mixing the at least one jet stream of the first fluid with the at least one jet stream
of the second fluid about the vicinity of the impact area upon impingement of the jet
streams with the impinging plate, each jet stream having sufficient linear velocity to
achieve high intensity mixing of said fluids;
30 reacting the first and second reactive intermediates, followed by nucleation of the
pharmaceutical product.
4. A process for synthesis and crystallization of a pharmaceutical product having
small crystals of controlled particle size, comprising the steps of:

impinging at least one jet stream of a first fluid including a feed solution of the pharmaceutical product on an impact area defined on a surface of an impinging plate;

impinging at least one jet stream of a second fluid including an anti-solvent on the impact area; and

- 5 mixing the at least one jet stream of the first fluid with the at least one jet stream of the second fluid about the vicinity of the impact area upon impingement of the jet streams with the impinging plate, each jet stream having sufficient linear velocity to achieve high intensity mixing of the feed solution and the anti-solvent, followed by nucleation of the pharmaceutical product.

- 10 5. A process according to any one of claims 2 to 4, wherein the pharmaceutical product is voriconazole.